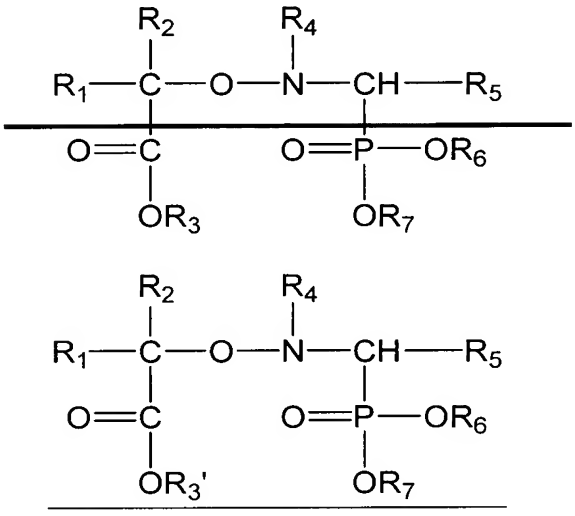
IN THE CLAIMS

Please amend the claims as follows:

1-40 (Cancelled)

41 (Currently Amended): A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof, wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

~~R_3~~ R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

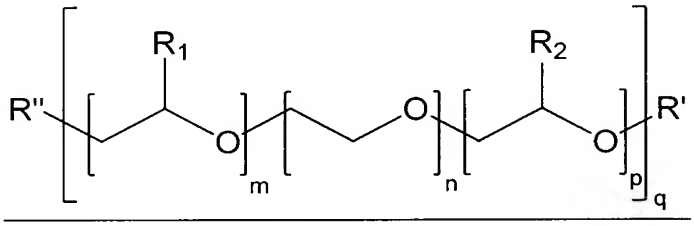
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 4 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer.

Claim 42 (Previously Presented): The process according to claim 41, wherein R_4 and R_5 are each independently a t-butyl group and R_6 and R_7 are each independently an ethyl radical.

Claim 43 (Previously Presented): The process according to claim 41, wherein R_1 and R_2 each represent a methyl radical and R_3 is a hydrogen atom.

Claim 44 (Previously Presented): The process according to claim 41, wherein said at least one water soluble polymer is in the form of a random copolymer, a block copolymer, a comb copolymer, a graft copolymer, or an alternating copolymer.

45-46 (Cancelled)

47 (Currently Amended): The process according to claim ~~46~~ 41, wherein q is a whole number at least equal to 1 and such that $15 \leq (m+n+p)q \leq 120$.

48 (Currently Amended): The process according to claim ~~46~~ 41, wherein R is a radical selected from the group consisting of a vinyl radical, an acrylic radical, a methacrylic radical, a maleic radical, an itaconic radical, a crotonic radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

49 (Previously Presented): The process according to claim 48, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane.

50-51 (Cancelled)

52 (Currently Amended): The process according to claim ~~46~~ 41, wherein the water insoluble monomer is selected from the group consisting of an alkyl acrylate and an alkyl methacrylate.

53 (Currently Amended): The process according to claim ~~46~~ 41, wherein the vinyl ester is at least one member selected from the group consisting of vinyl acetate, vinylpyrrolidone, styrene, and alphamethylstyrene.

54 (Currently Amended): The process according to claim ~~45~~ 41, wherein said at least one anionic monomer is at least one of:

an anionic ethylenically unsaturated monomer having a monocarboxylic functional group in the acidic or salified state selected from the group consisting of acrylic acid, methacrylic acid, a C_1 to C_4 monoester of maleic acid and a C_1 to C_4 monoester of itaconic acid;

an anionic ethylenically unsaturated monomer having a dicarboxylic functional group in the acidic or salified state selected from the group consisting of crotonic acid, isocrotonic acid, cinnamic acid, itaconic acid, maleic acid, and maleic anhydride;

an anionic ethylenically unsaturated monomer having a sulfonic functional group in the acidic or salified state selected from the group consisting of acrylamido-methyl-propane-sulfonic acid, sodium methallylsulfonate, vinyl sulfonic acid and styrene sulfonic acid;

an anionic ethylenically unsaturated monomer having a phosphoric functional group in the acidic or salified state selected from the group consisting of vinyl phosphoric acid, ethylene glycol methacrylate phosphate, propylene glycol methacrylate phosphate, ethylene glycol acrylate phosphate, propylene glycol acrylate phosphate and an ethoxylate thereof; and

an anionic ethylenically unsaturated monomer having a phosphonic functional group in the acidic or salified state.

55 (Currently Amended): The process according to claim ~~45~~ 41, wherein said at least one cationic monomer is at least one member selected from the group consisting of N-[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound; or a combination thereof.

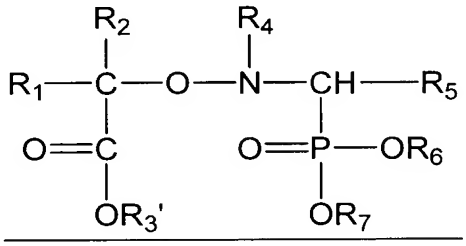
56 (Previously Presented): The process according to claim 55, wherein said unsaturated ester is selected from the group consisting of N-[2-(dimethylamino) ethyl] methacrylate and N-[2-(dimethylamino) ethyl] acrylate, and

said quaternary ammonium compound is selected from the group consisting of [2-(methacryloyloxy) ethyl] trimethyl ammonium chloride, [2-(methacryloyloxy) ethyl] trimethyl ammonium sulfate, [2-(acryloyloxy) ethyl] trimethyl ammonium chloride, [2-(acryloyloxy) ethyl] trimethyl ammonium sulfate, [3-(acrylamido) propyl] trimethyl ammonium chloride, [3-(acrylamido) propyl] trimethyl ammonium sulfate, dimethyl diallyl ammonium chloride, dimethyl diallyl ammonium sulfate, [3-(methacrylamido) propyl]

trimethyl ammonium chloride, [3-(methacrylamido) propyl] trimethyl ammonium sulfate, and a mixture thereof.

57 (Currently Amended): ~~The process according to claim 46, wherein~~

A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof, wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

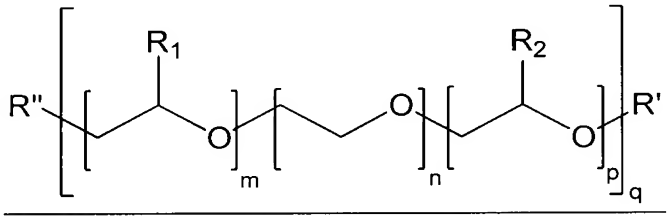
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

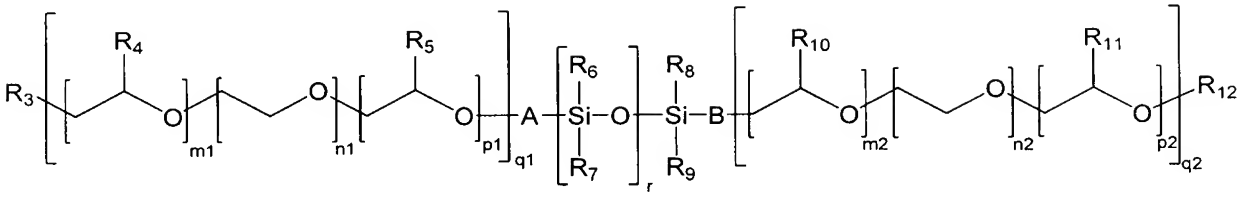
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer, wherein

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

$$R - A - Si(OB)_3$$

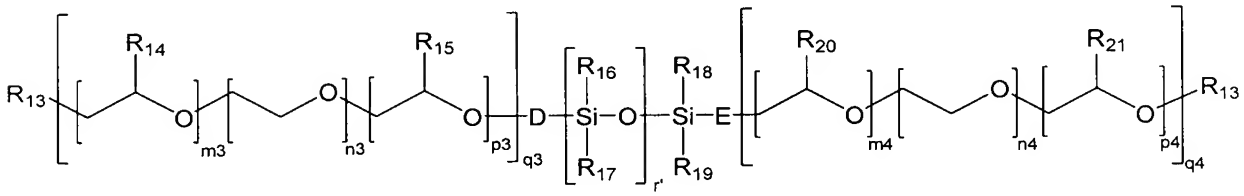
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

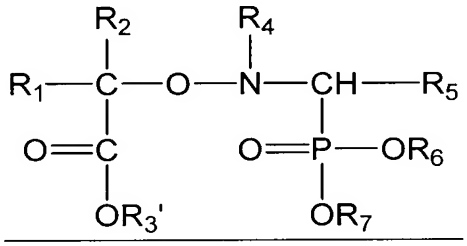
R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms.

58 (Currently Amended): ~~The process according to claim 57,~~

A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof, wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

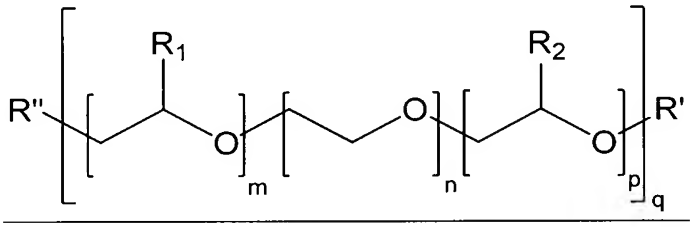
R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group

and a sulfonic functional group; at least one cationic monomer; a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

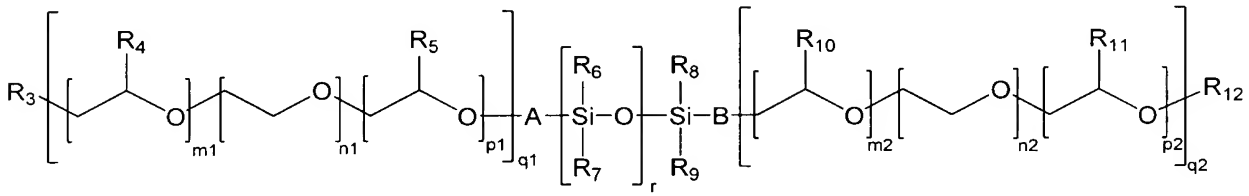
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer, wherein

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

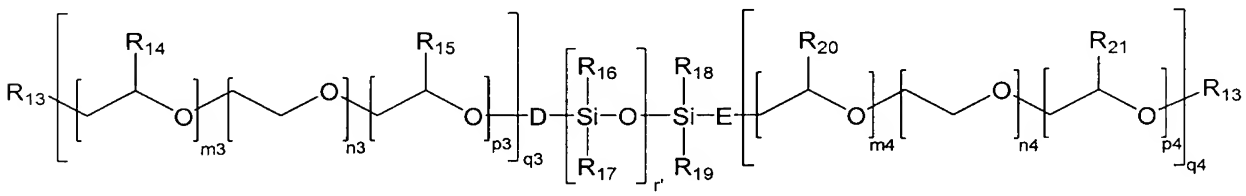
$$R - A - Si(OB)_3$$

where:

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

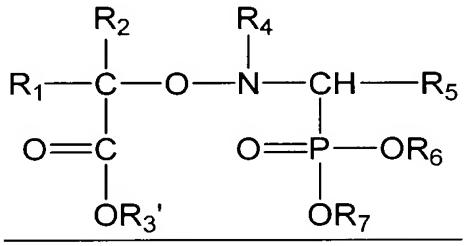
D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms, and

wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical, an acrylic ester radical, a methacrylic ester radical, a maleic ester radical, an itaconic ester radical, a crotonic ester radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

59 (Currently Amended): ~~The process according to claim 58, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane~~

A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof,

wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

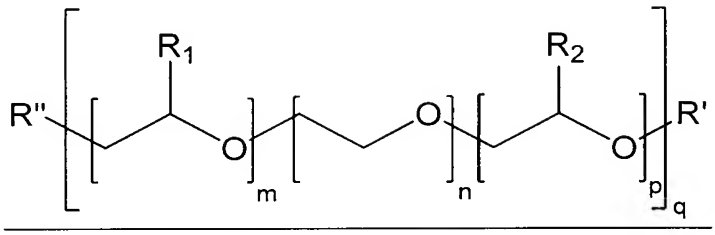
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

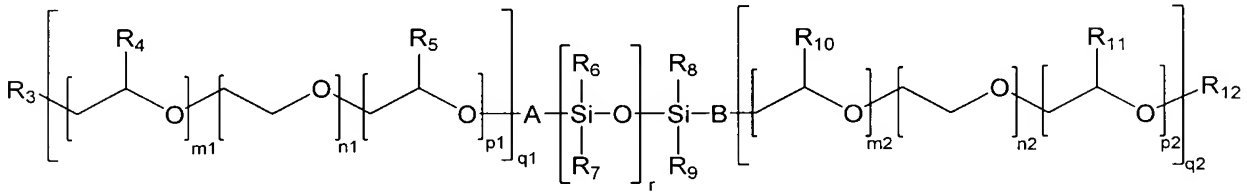
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer, wherein

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

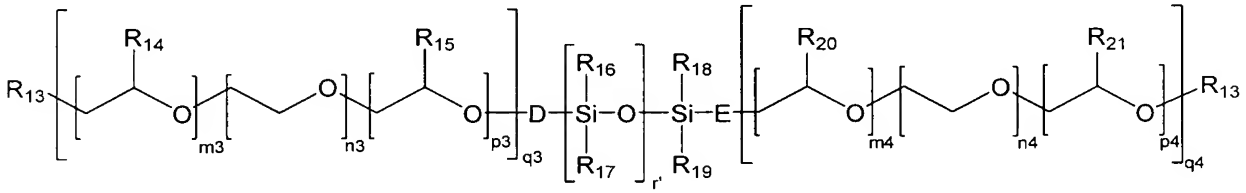
$$R - A - Si(OB)_3$$

where:

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

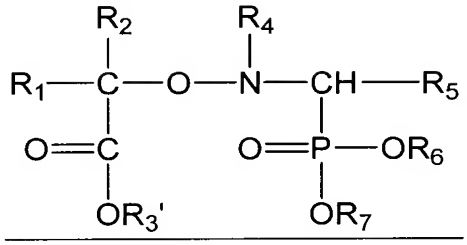
R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms, and

wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical; an acrylic ester radical; a methacrylic ester radical; a maleic ester radical; an itaconic ester radical; a crotonic ester radical; a vinylphthalic ester radical; an unsaturated urethane radical selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane; a substituted or unsubstituted allyl ether radical; a substituted or unsubstituted vinyl ether radical; an ethylenically unsaturated amide radical; and an ethylenically unsaturated imide radical.

60 (Currently Amended): ~~The process according to claim 41,~~

A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof, wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

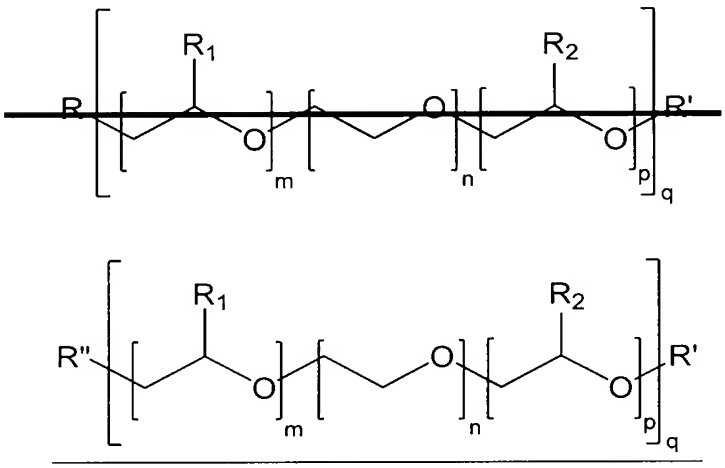
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms

wherein said polymer comprises as monomer units, expressed by weight:

a) 2% to 100% of at least one ionic monomer selected from the group consisting of an ethylenically unsaturated anionic monomer having a monocarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a dicarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a sulfonic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphoric functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphonic functional group in the acidic or salified state; N-[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound,

b) 0 to 98% of at least one monomer with nonionic ethylenic unsaturation represented by formula (I):



(I)

where:

m, n and p are each a number less than or equal to 150,

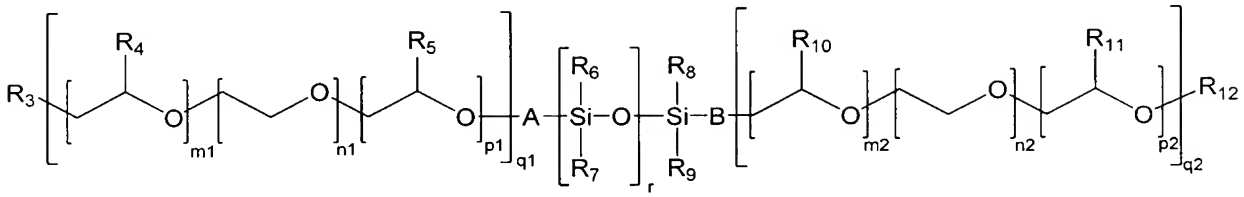
q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

~~R~~ R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to ~~40~~ 4 carbon atoms,

c) 0% to 50% of at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, an organofluorine compound represented by formula (IIa), and an organosilicon compound represented by formula (IIb),



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

$$R - A - Si(OB)_3 \qquad \text{(IIb)}$$

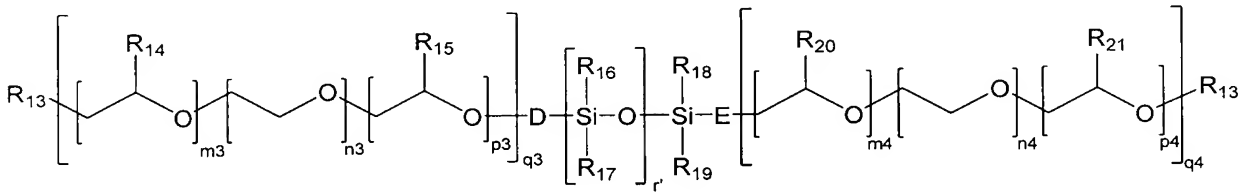
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms,

d) 0 to 3% of at least one cross-linking monomer selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms.

61 (Previously Presented): The process according to claim 60, wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical, an acrylic

ester radical, a methacrylic ester radical, a maleic ester radical, an itaconic ester radical, a crotonic ester radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

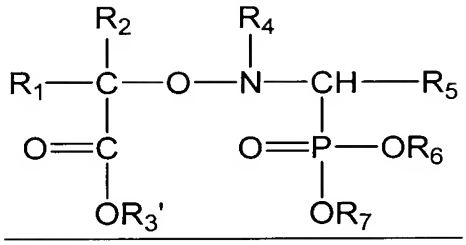
62 (Previously Presented): The process according to claim 61, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane.

63 (Previously Presented): The process according to claim 60, wherein said water insoluble monomer is selected from the group consisting of an alkyl acrylate and an alkyl methacrylate.

64-65 (Cancelled)

66 (Currently Amended): ~~The process according to claim 60,~~

A process comprising adding at least one water soluble polymer to a pigment in an aqueous suspension, to a mineral filler in an aqueous suspension, or a combination thereof, wherein said at least one water soluble polymer has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

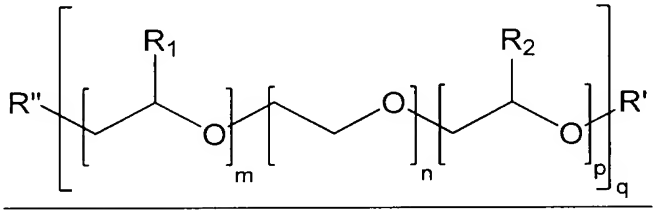
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms

wherein said polymer comprises as monomer units, expressed by weight:

a) 2% to 100% of at least one ionic monomer selected from the group consisting of an ethylenically unsaturated anionic monomer having a monocarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a dicarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a sulfonic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphoric functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphonic functional group in the acidic or salified state; N-[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound,

b) 0 to 98% of at least one monomer with nonionic ethylenic unsaturation represented by formula (I):



(I)

where:

m, n and p are each a number less than or equal to 150,

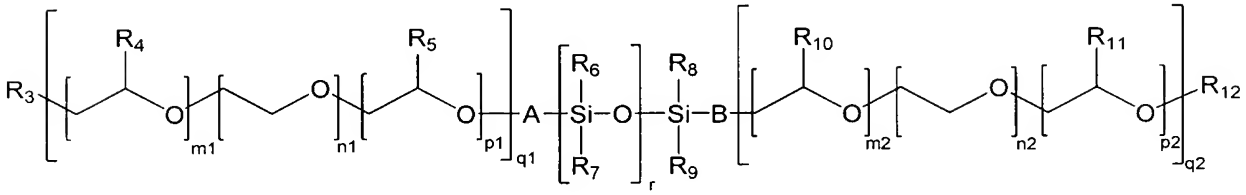
q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms,

c) 0% to 50% of at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, an organofluorine compound represented by formula (IIa), and an organosilicon compound represented by formula (IIb),



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

$$R - A - Si(OB)_3 \qquad \text{(IIb)}$$

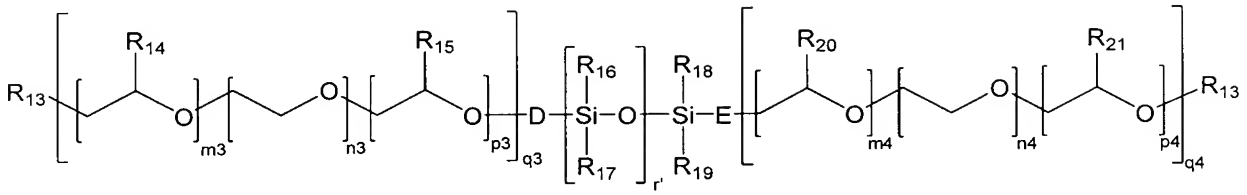
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms,

d) 0 to 3% of at least one cross-linking monomer selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms, and

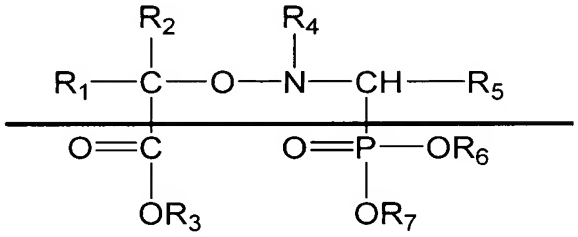
wherein said polyol of said allyl ether obtained from a polyol is selected from the group consisting of pentaerythritol, sorbitol, and sucrose.

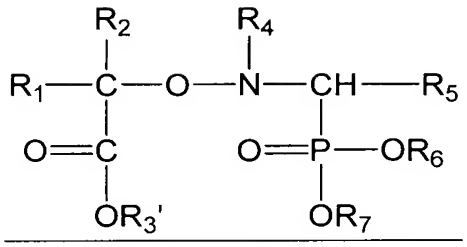
67 (Previously Presented): The process according to claim 41, wherein said at least one water soluble polymer is present in an amount of from 0.05 to 5% by dry weight with respect to the dry weight of the pigment, the mineral filler, or a combination thereof.

68 (Previously Presented): The process according to claim 67, wherein said at least one water soluble polymer is present in an amount of from 0.1 to 3% by dry weight with respect to the dry weight of the pigment, the mineral filler, or a combination thereof.

69 (Currently Amended): The process according to claim 67, wherein the pigment and the mineral filler are each selected from the group consisting of natural calcium carbonate, synthetic calcium carbonate, dolomites, kaolonite, talc, cement, gypsum, lime, magnesia, titanium oxide, satin white, aluminum trioxide, aluminum trihydroxide, silicas, mica, talc-calcium carbonate, a calcium carbonate-kaolinite mixture, a mixture of calcium carbonate with aluminum trihydroxide, a mixture of calcium carbonate with aluminum trioxide, a mixture of synthetic fibers, natural fibers, a talc-calcium carbonate co-structure, ~~or~~ and a talc-titanium dioxide co-structure.

70 (Currently Amended): A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):





(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

~~R_3~~ R' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

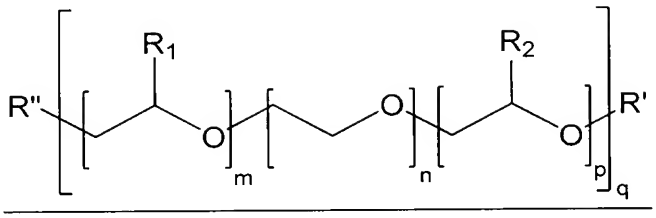
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; or a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 4 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer.

71 (Previously Presented): The compound according to claim 70, wherein R_4 and R_5 are each independently a t-butyl group and R_6 and R_7 are each independently an ethyl radical.

72 (Previously Presented): The compound according to claim 70, wherein R_1 and R_2 each represent a methyl radical and R_3 is a hydrogen atom.

73 (Previously Presented): The compound according to claim 70, wherein said at least one water soluble polymer is in the form of a random copolymer, a block copolymer, a comb copolymer, a graft copolymer, or an alternating copolymer.

74-75 (Cancelled)

76 (Currently Amended): The compound according to claim ~~75~~ 70, wherein q is a whole number at least equal to 1 and such that $15 \leq (m+n+p)q \leq 120$.

77 (Currently Amended): The compound according to claim ~~75~~ 70, wherein R is a radical selected from the group consisting of a vinyl radical, an acrylic radical, a methacrylic radical, a maleic radical, an itaconic radical, a crotonic radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

78 (Previously Presented): The compound according to claim 77, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane.

79-80 (Cancelled)

81 (Currently Amended): The compound according to claim ~~75~~ 70, wherein said water insoluble monomer is selected from the group consisting of an alkyl acrylate and an alkyl methacrylate.

82 (Currently Amended): The compound according to claim ~~75~~ 70, wherein said vinyl ester is at least one member selected from the group consisting of vinyl acetate, vinylpyrrolidone, styrene, and alphamethylstyrene.

83 (Currently Amended): The compound according to claim ~~74~~ 70, wherein said at least one anionic monomer is at least one of:

an anionic ethylenically unsaturated monomer having a monocarboxylic functional group in the acidic or salified state selected from the group consisting of acrylic acid, methacrylic acid, a C_1 to C_4 monoester of maleic acid and a C_1 to C_4 monoester of itaconic acid;

an anionic ethylenically unsaturated monomer having a dicarboxylic functional group in the acidic or salified state selected from the group consisting of crotonic acid, isocrotonic acid, cinnamic acid, itaconic acid, maleic acid, and maleic anhydride;

an anionic ethylenically unsaturated monomer having a sulfonic functional group in the acidic or salified state selected from the group consisting of acrylamido-methyl-propane-sulfonic acid, sodium methallylsulfonate, vinyl sulfonic acid and styrene sulfonic acid;

an anionic ethylenically unsaturated monomer having a phosphoric functional group in the acidic or salified state selected from the group consisting of vinyl phosphoric acid, ethylene glycol methacrylate phosphate, propylene glycol methacrylate phosphate, ethylene glycol acrylate phosphate, propylene glycol acrylate phosphate and an ethoxylate thereof; and

an anionic ethylenically unsaturated monomer having a phosphonic functional group in the acidic or salified state.

84 (Currently Amended): The compound according to claim ~~74~~ 70, wherein said at least one cationic monomer is at least one member selected from the group consisting of N-

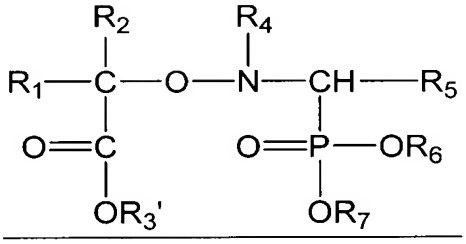
[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound; or a combination thereof.

85 (Previously Presented): The compound according to claim 84, wherein said unsaturated ester is selected from the group consisting of N-[2-(dimethylamino) ethyl] methacrylate and N-[2-(dimethylamino) ethyl] acrylate, and

said quaternary ammonium compound is selected from the group consisting of [2-(methacryloyloxy) ethyl] trimethyl ammonium chloride, [2-(methacryloyloxy) ethyl] trimethyl ammonium sulfate, [2-(acryloyloxy) ethyl] trimethyl ammonium chloride, [2-(acryloyloxy) ethyl] trimethyl ammonium sulfate, [3-(acrylamido) propyl] trimethyl ammonium chloride, [3-(acrylamido) propyl] trimethyl ammonium sulfate, dimethyl diallyl ammonium chloride, dimethyl diallyl ammonium sulfate, [3-(methacrylamido) propyl] trimethyl ammonium chloride, [3-(methacrylamido) propyl] trimethyl ammonium sulfate, and a mixture thereof.

86 (Currently Amended): ~~The compound according to claim 75, wherein~~

A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

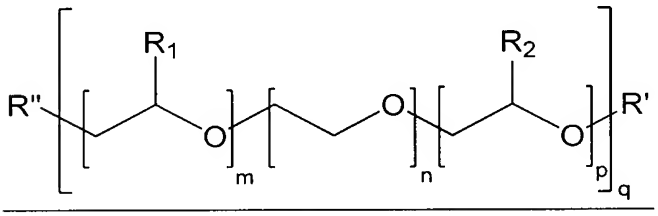
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; or a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

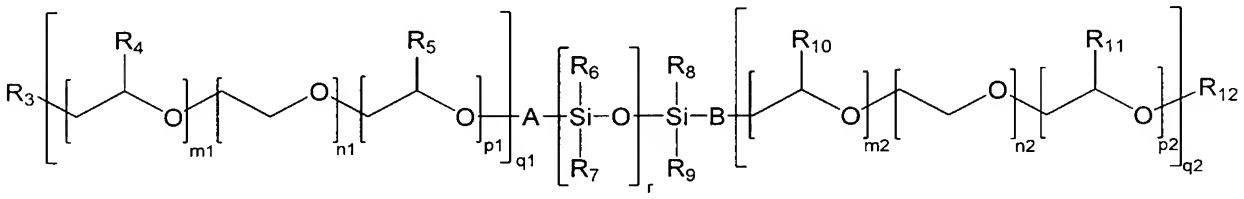
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer,

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

$$R - A - Si(OB)_3$$

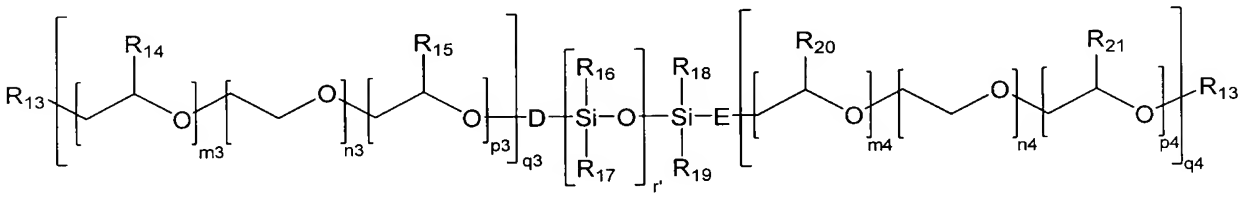
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

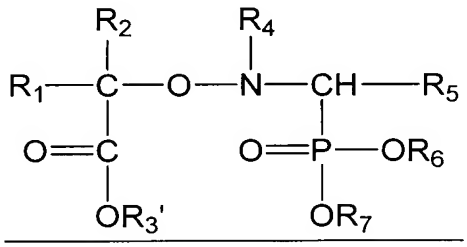
R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms.

87 (Currently Amended): ~~The compound according to claim 86,~~

A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3" is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

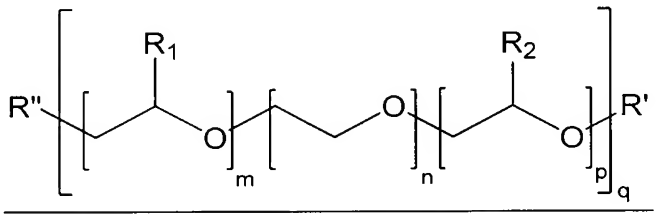
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; or a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

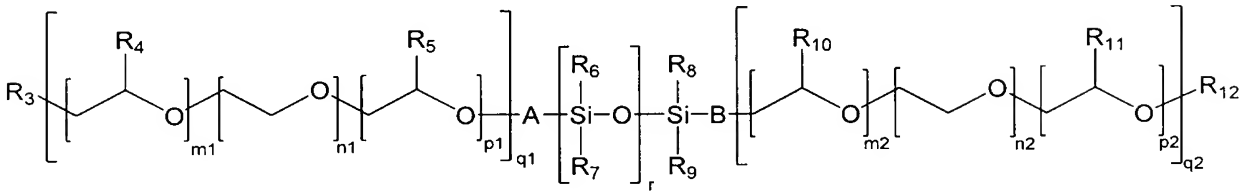
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer,

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

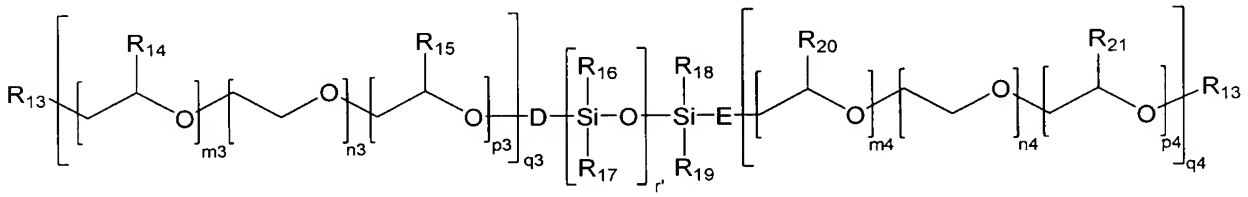
$$R - A - Si(OB)_3$$

where:

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

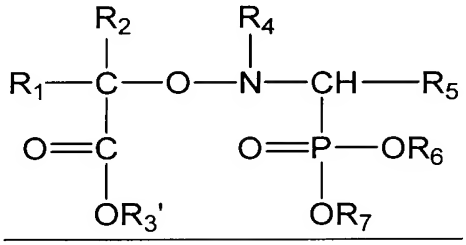
D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms

wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical, an acrylic ester radical, a methacrylic ester radical, a maleic ester radical, an itaconic ester radical, a crotonic ester radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or

unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

88 (Currently Amended): ~~The compound according to claim 87, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane~~

A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

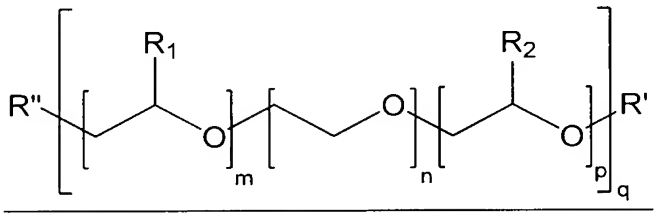
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said at least one water soluble polymer is obtained by controlled free radical polymerization of monomers comprising:

at least one anionic monomer having at least one of a carboxylic functional group, a dicarboxylic functional group, a phosphoric functional group, a phosphonic functional group and a sulfonic functional group; at least one cationic monomer; or a combination thereof; and at least one of:

at least one nonionic monomer represented by formula (I)



(I)

where:

m, n and p are each a number less than or equal to 150,

q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

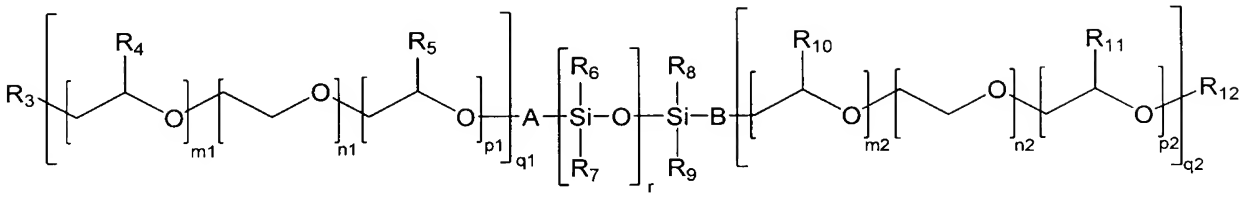
R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms;

at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, a vinyl ester, an organofluorine compound, and an organosilicon compound; and at least one cross-linking monomer,

said organofluorine compound is represented by formula (IIa)



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

said organosilicon compound is represented by formula (IIb):

$$R - A - Si(OB)_3$$

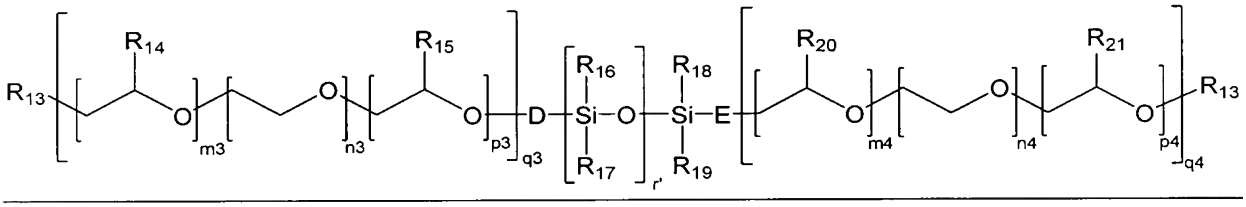
where:

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms; and

said at least one crosslinking monomer is at least one member selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate,

allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

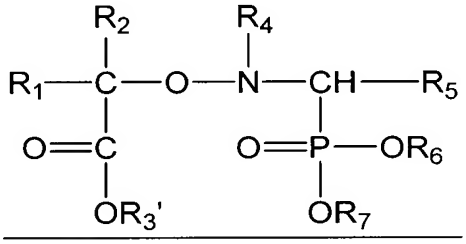
D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms

wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical; an acrylic ester radical; a methacrylic ester radical; a maleic ester radical; an itaconic ester radical; a crotonic ester radical; a vinylphthalic ester radical; an unsaturated urethane radical selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane; a substituted or unsubstituted allyl

ether radical; a substituted or unsubstituted vinyl ether radical; an ethylenically unsaturated amide radical; and an ethylenically unsaturated imide radical.

89 (Currently Amended): ~~The compound according to claim 70,~~

A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

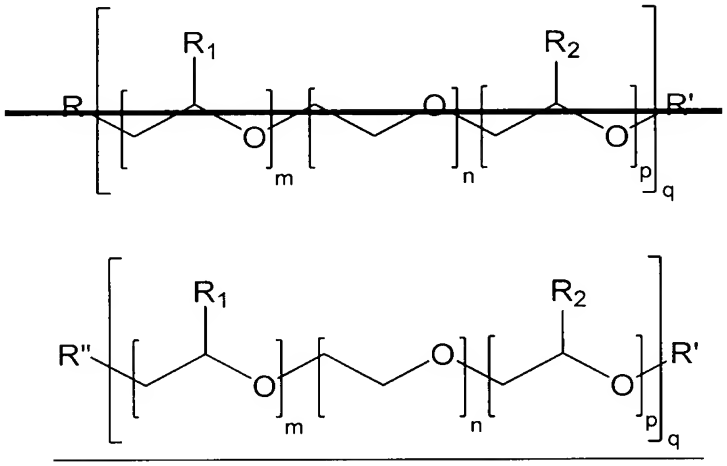
R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said polymer comprises as monomer units, expressed by weight:

a) 2% to 100% of at least one ionic monomer selected from the group consisting of an ethylenically unsaturated anionic monomer having a monocarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a dicarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a sulfonic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphoric functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphonic functional group in the acidic or salified state; N-[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound,

b) 0 to 98% of at least one monomer with nonionic ethylenic unsaturation represented by formula (I):



(I)

where:

m, n and p are each a number less than or equal to 150,

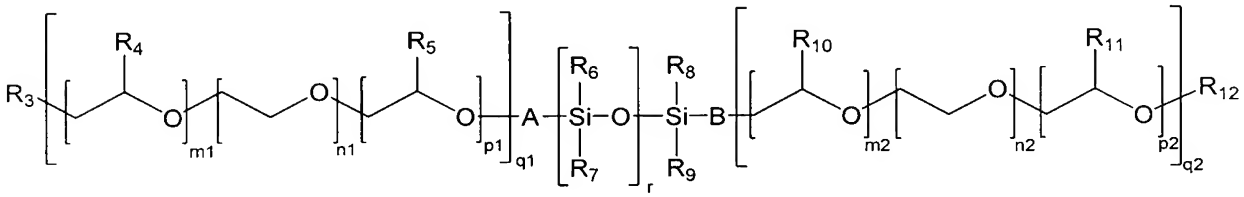
q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to ~~40~~ 4 carbon atoms,

c) 0% to 50% of at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, an organofluorine compound represented by formula (IIa), and an organosilicon compound represented by formula (IIb),



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

$$R - A - Si\,(OB)_3 \qquad \text{(IIb)}$$

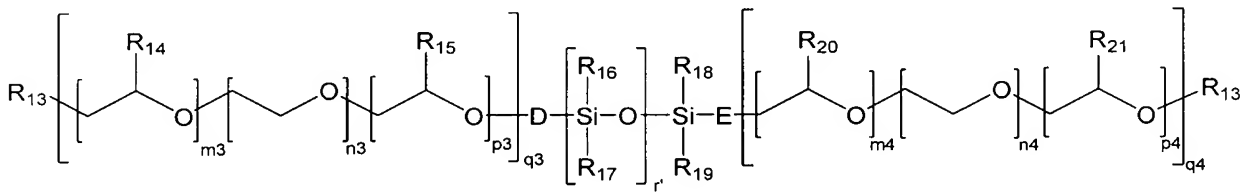
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms,

d) 0 to 3% of at least one cross-linking monomer selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms.

90 (Previously Presented): The compound according to claim 89, wherein each of R, R_3 and R_{13} are independently selected from the group consisting of a vinyl radical, an acrylic ester radical, a methacrylic ester radical, a maleic ester radical, an itaconic ester radical, a crotonic ester radical, a vinylphthalic ester radical, an unsaturated urethane radical, a substituted or unsubstituted allyl ether radical, a substituted or unsubstituted vinyl ether radical, an ethylenically unsaturated amide radical, and an ethylenically unsaturated imide radical.

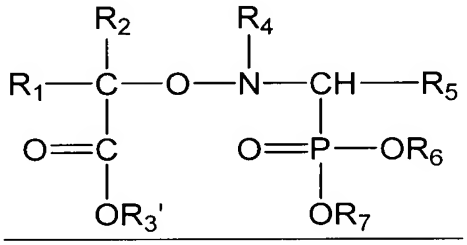
91 (Previously Presented): The compound according to claim 90, wherein said unsaturated urethane radical is selected from the group consisting of acrylurethane, methacrylurethane, α-α' dimethyl-isopropenyl-benzylurethane, and allylurethane.

92 (Previously Presented): The compound according to claim 89, wherein said water insoluble monomer is selected from the group consisting of an alkyl acrylate and an alkyl methacrylate.

93-94 (Cancelled)

95 (Currently Amended): ~~The compound according to claim 89,~~

A compound operable as a dispersant or a grinding aid agent for a pigment, a mineral filler, or a combination thereof, in aqueous suspension, comprising at least one water soluble polymer that has a controlled structure and is obtained by a controlled free radical polymerization of monomers in the presence of, as polymerization initiator, an alkoxyamine represented by general formula (A):



(A)

where:

R_1 and R_2 each independently represent a linear or branched alkyl radical with 1 to 5 carbon atoms,

R_3' is a hydrogen atom, a linear or branched alkyl radical with 1 to 8 carbon atoms, a phenyl radical, or a cation selected from the group consisting of Li^+, Na^+, K^+, H_4N^+, and Bu_3HN^+ where Bu is a butyl group,

R_4 and R_5 are each independently a linear or branched alkyl radical with 1 to 8 carbon atoms, and

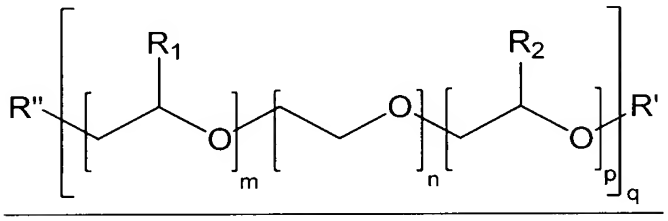
R_6 and R_7 each represent a linear or branched alkyl radical with 1 to 8 carbon atoms,

wherein said polymer comprises as monomer units, expressed by weight:

a) 2% to 100% of at least one ionic monomer selected from the group consisting of an ethylenically unsaturated anionic monomer having a monocarboxylic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a dicarboxylic functional group in the acidic or salified state; an ethylenically unsaturated

anionic monomer having a sulfonic functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphoric functional group in the acidic or salified state; an ethylenically unsaturated anionic monomer having a phosphonic functional group in the acidic or salified state; N-[3-(dimethylamino) propyl] acrylamide, N-[3-(dimethylamino) propyl] methacrylamide, an unsaturated ester, and a quaternary ammonium compound,

b) 0 to 98% of at least one monomer with nonionic ethylenic unsaturation represented by formula (I):



(I)

where:

m, n and p are each a number less than or equal to 150,

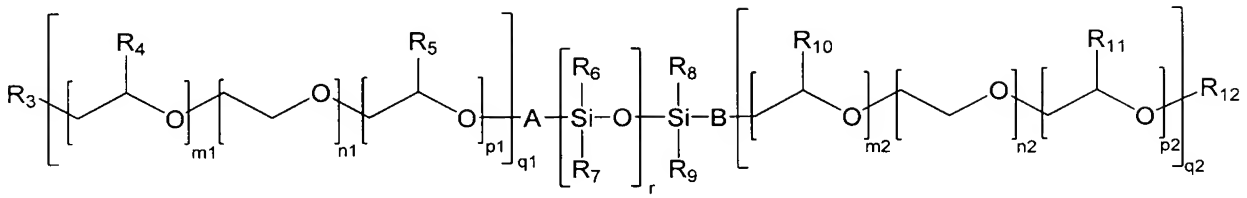
q is a whole number at least equal to 1 and such that $5 \leq (m+n+p)q \leq 150$,

R_1 and R_2 are each independently a hydrogen, a methyl radical, or an ethyl radical,

R" is a radical containing a polymerizable unsaturated functional group,

R' is a hydrogen or a hydrocarbon radical with 1 to 40 carbon atoms,

c) 0% to 50% of at least one monomer selected from the group consisting of an acrylamide, a methacrylamide, a water insoluble monomer, an organofluorine compound represented by formula (IIa), and an organosilicon compound represented by formula (IIb),



(IIa)

where:

m1, n1, p1, m2, n2, and p2 each represent a number less than or equal to 150,

q1 and q2 represent a whole number at least equal to 1 and such that $0 \leq (m1+n1+p1)q1 \leq 150$ and $0 \leq (m2+n2+p2)q2 \leq 150$,

r is a number such that $1 \leq r \leq 200$,

R_3 is a radical containing a polymerizable unsaturated functional group

R_4, R_5, R_{10} and R_{11} each represent a hydrogen, a methyl radical, or an ethyl radical,

R_6, R_7, R_8 and R_9 each represent a linear or branched alkyl radical, an aryl radical, alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms,

R_{12} is a hydrocarbon radical with 1 to 40 carbon atoms,

A and B are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms;

$$R - A - Si(OB)_3 \qquad \text{(IIb)}$$

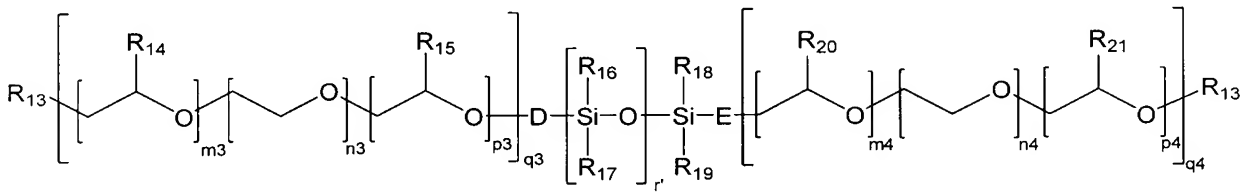
where:

R is a radical containing a polymerizable unsaturated functional group,

A is a group that may be present, which then represents a hydrocarbon radical with 1 to 4 carbon atoms, and

B is a hydrocarbon radical with 1 to 4 carbon atoms,

d) 0 to 3% of at least one cross-linking monomer selected from the group consisting of ethylene glycol dimethacrylate, trimethylolpropanetriacrylate, allyl acrylate, allyl maleates, methylene-bis-acrylamide, methylene-bis-methacrylamide, tetrallyloxyethane, triallylcyanurates, an allyl ether obtained from a polyol, and a monomer represented by formula (III):



(III)

where

m3, n3, p3, m4, n4 and p4 each represent a number less than or equal to 150,

q3 and q4 each represent a whole number at least equal to 1 and such that $0 \leq (m3+n3+p3)q3 \leq 150$ and $0 \leq (m4+n4+p4)q4 \leq 150$,

r' is a number such that $1 \leq r' \leq 200$,

R_{13} is a radical containing a polymerizable unsaturated functional group,

R_{14}, R_{15}, R_{20} and R_{21} each represent hydrogen, a methyl radical, or an ethyl radical,

R_{16}, R_{17}, R_{18} and R_{19} each represent a linear or branched alkyl radical, an aryl radical, an alkylaryl radical, or an arylalkyl radical with 1 to 20 carbon atoms, and

D and E are groups that may be present, which then represent a hydrocarbon radical with 1 to 4 carbon atoms, and

wherein said polyol of said allyl ether obtained from a polyol is selected from the group consisting of pentaerythritol, sorbitol, and sucrose.

96 (Previously Presented): A process for grinding a pigment, a mineral filler, or a combination thereof comprising grinding at least one pigment, at least one mineral filler, or a combination thereof in the presence of the compound according to claim 70.

97 (Previously Presented): The process according to claim 96, wherein said at least one water soluble copolymer is present in an amount of from 0.05 to 5% by dry weight with respect to the dry weight of the at least one pigment, the at least one mineral filler, or combination thereof.

98 (Previously Presented): The process according to claim 97, wherein said at least one water soluble copolymer is present in an amount of from 0.1 to 3% by dry weight with respect to the dry weight of the at least one pigment, the at least one mineral filler, or combination thereof.

99 (Currently Amended): The process according to claim 97, wherein the pigment and the mineral filler are each selected from the group consisting of natural calcium carbonate, synthetic calcium carbonate, dolomites, kaolonite, talc, cement, gypsum, lime, magnesia, titanium oxide, satin white, aluminum trioxide, aluminum trihydroxide, silicas, mica, talc-calcium carbonate, a calcium carbonate-kaolinite mixture, a mixture of calcium carbonate with aluminum trihydroxide, a mixture of calcium carbonate with aluminum trioxide, a mixture of synthetic fibers, natural fibers, a talc-calcium carbonate co-structure, ~~or~~ and a talc-titanium dioxide co-structure.

100 (Previously Presented): An aqueous dispersion of at least one pigment, at least one mineral filler, or a combination thereof comprising the compound according to claim 70.

101 (Previously Presented): The aqueous dispersion according to claim 100, comprising 0.05 to 5% by dry weight of said at least one water soluble polymer with respect to the dry weight of the at least one pigment, the at least one mineral filler, or combination thereof.

102 (Previously Presented): The aqueous dispersion according to claim 101, comprising 0.1 to 3% by dry weight of said at least one water soluble polymer with respect to the dry weight of the at least one pigment, the at least one mineral filler, or combination thereof.

103 (Currently Amended): The aqueous dispersion according to claim 100, wherein the pigment and the mineral filler are each selected from the group consisting of natural calcium carbonate, synthetic calcium carbonate, dolomites, kaolonite, talc, cement, gypsum, lime, magnesia, titanium oxide, satin white, aluminum trioxide, aluminum trihydroxide, silicas, mica, talc-calcium carbonate, a calcium carbonate-kaolinite mixture, a mixture of calcium carbonate with aluminum trihydroxide, a mixture of calcium carbonate with aluminum trioxide, a mixture of synthetic fibers, natural fibers, a talc-calcium carbonate co-structure, ~~or~~ and a talc-titanium dioxide co-structure.

104 (Previously Presented): The aqueous dispersion according to claim 100, wherein said pigment is a ground pigment.

105 (Currently Amended): The aqueous dispersion according to claim 104, wherein the ground pigment is selected from the group consisting of natural calcium carbonate,

synthetic calcium carbonate, dolomites, kaolonite, talc, cement, gypsum, lime, magnesia, titanium oxide, satin white, aluminum trioxide, aluminum trihydroxide, silicas, mica, talc-calcium carbonate, a calcium carbonate-kaolinite mixture, a mixture of calcium carbonate with aluminum trihydroxide, a mixture of calcium carbonate with aluminum trioxide, a mixture of synthetic fibers, natural fibers, a talc-calcium carbonate co-structure, ~~or~~ and a talc-titanium dioxide co-structure.

106 (Currently Amended): A process for dispersing mineral matter in a paper formulation, in a water-based paint, in a cement, in a ceramic composition, in a detergent composition, or in a drilling mud, comprising dispersing therein the aqueous dispersion according to claim 100.

107 (Previously Presented): A paper formulation, a water-based paint, a plastic composition, a cement, a ceramic, a detergent, a cosmetic, or a drilling mud composition comprising 0.01 to 5% by dry weight of the aqueous dispersion according to claim 100.